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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,153	12/15/2003	Donald James Milligan	200308989-1	2070

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FORT COLLINS, CO 80527-2400

EXAMINER
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NGUYEN, LINH THI

ART UNIT	PAPER NUMBER
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2627

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/22/2006	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/734,153	Applicant(s) MILLIGAN ET AL.	
	Examiner Linh T. Nguyen	Art Unit 2627	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 1503 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-8, 15-19, 21, and 23-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Nose et al (US Patent number 4998016).

In regards to claims 1, 15, and 21, Noses et al discloses an electrostatic actuator and method for a contact probe storage device (Fig. 1) comprising: a first electrode (Fig. 1, element 2); a second electrode (Fig. 1, element 4) supported in a predetermined spaced essentially parallel relationship with the first electrode (Fig. 1, elements 1 and 4 are parallel of each other and the distance between them is the cavity 8) by resilient members (Fig. 1, elements 5 and 6 are resilient members); and a probe (Fig. 1 element 7) configured to engage a medium in which data indicative topographical features are formed (Fig. 13, it is inherent that the apparatus will record a pattern onto the medium by marks), the probe being mounted on the second electrode so as to extend away from the first electrode (Fig. 1, the probe 7 is mounted on the upper electrode 4 which is away from the lower electrode 2), one of the first and second electrodes being configured to have a voltage selectively applied thereto to attract the first and second electrodes toward one another and move the probe away from the medium (Column 6,

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lines 10-13 and 22-28).

In regards to claims 3 and 23, Nose et al discloses an electrostatic actuator, wherein the second electrode is supported by a plurality of flexible extension members (Fig. 1, elements 5 and 6).

In regards to claims 4 and 24, Nose et al discloses an electrostatic actuator, wherein a first pair of the flexible extensions are configured to apply a voltage to the second electrode (Column 6, lines 34-41, since it is a bridge shape, outer area can be call the flexible extensions which apply voltage to the upper electrode 4).

In regards to claims 5, 19 and 25, Nose et al discloses an electrostatic actuator and method, further comprising a heater disposed on the second electrode, the heater being electrically isolated from the second electrode and electrically connected with a second pair of the flexible extensions which are configured to supply electrical current to the heater (Column 12, lines 27-35 and Fig. 3A-3D; It is inherent there is a heater within the bridge to protect the thermal expansion of the probe from damage).

In regards to claims 6 and 26, Nose et al discloses an electrostatic actuator as set forth in claim 3, wherein the flexible extension members are made of an electrically conductive material (Column 6, lines 51-58; copper, tungsten and titanium are all

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conductive material).

In regards to claims 7, 18 and 27, Nose et al discloses an electrostatic actuator and method, wherein the flexible extension members each have an electrically conductive portion (Column 6, lines 51-58; if they are made of conductive material then they have an electrical conductive portion).

In regards to claim 8, Nose et al discloses an electrostatic actuator arrangement for a contact probe storage device comprising: a probe (Fig. 1, element 7) configured to engage a medium in which data indicative topographical features are formed (It is inherent that marks will be in formed in form of bits on the medium); and linear acting electrostatic motor means for selectively drawing the probe out of engagement with the medium (Column 6, lines 10-16).

In regards to claim 16, Nose et al discloses a method as set forth in claim 15, further comprising: forming a probe, which is supported on the second electrode (Fig. 1, element 4) and which is configured to engage a medium in which data indicative topographical features are formed (Column 10, lines 6-12 and Fig. 13, it is inherent that the apparatus will record a pattern onto the medium by marks); and forming spacers (Fig. 10, element 106) which support the medium in a predetermined spatial relationship with the probe (Fig. 10).

In regards to claim 17, Nose et al discloses a method as set forth in claim 15, comprising: forming a plurality of elongate flexures (Fig. 1, element 5 and 6) which each have an end supported by one of the supports (Fig. 1, element 3), and which each have an end juxtaposed the second electrode (Fig. 1, the end of elements 5 and 6 are juxtaposed to element 4); configuring one pair of flexures to be integral with the second electrode and a second pair of flexures to be connected to the second electrode through an electrically insulative member (Fig. 1, element 5 is insulating film); and using the flexures to support the second electrode in the predetermined spaced essentially parallel relationship with the first electrode (Fig. 1, element 8 is a spacer between element 2 and 4 lower/upper electrodes).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 9-14, 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nose et al in view of Azuma et al (US Patent number 6477132).

In regards to claims 2 and 22, Nose et al discloses everything that is claimed in claim 1, However, Nose et al does not disclose an actuator to produce a capacitance which varies with the displacement of the probe with respect to the medium.

In the same field of endeavor, Azuma et al discloses an actuator, wherein a capacitance varies with the displacement of the probe with respect to the medium (Column 5, lines 58-62). At the time of the invention it would have been obvious to a person of ordinary skill art to modify the actuator of Nose to produce a capacitance as to vary the displacement of the probe with respect the medium. The motivation for doing so would have been to control the amount of current in the actuator.

In regards to claims 9 and 20, Nose et al does not but Azuma et al discloses an actuator, further comprising: capacitor means for sensing displacement of a probe with respect to the medium which displacement is induced by engagement between the probe and a data indicative topographical feature (Column 5, lines 46-62; detecting in the change of capacitor is like detecting the displacement of the probe on the recording medium with the presence or absence of the recording bit). The motivation is the same as claim 2 above.

In regards to claim 10, Nose et al discloses an electrostatic actuator, wherein a first electrode; and a second electrode supported in a predetermined spaced essentially parallel relationship with the first electrode (Fig. 1).

Nose et al does not but Azuma et al discloses an actuator comprises of the capacitor means (Column 6, lines 58-63) and the linear acting electrostatic motor means (column 5, lines 46-58). The motivation is the same as claim 2 above.

In regards to claim 11, Nose et al discloses an electrostatic actuator arrangement, wherein the second electrode comprises flexible support means (Fig. 1, elements 5,6, and 8 are used to support the second electrode in parallel to the first electrode (Fig. 1).

In regards to claim 12, Nose et al discloses an electrostatic actuator arrangement, wherein the flexible support means further comprise means for establishing an electrical connection with the second electrode (Column 6, lines 52-58).

In regards to claim 13, Nose et al discloses an electrostatic actuator arrangement as set forth in claim 11, further comprising a heater supported on and electrically isolated from the second electrode and disposed proximate the probe (Column 12, lines 27-35 and Fig. 3A-3D; It is obvious that there is a heater within the bridge to protect the thermal expansion of the probe).

In regards to claim 14, Nose et al discloses an electrostatic actuator arrangement, wherein the flexible support means further comprise means for passing electrical current to the heater (Fig. 3A-D, element 4, 9 and 11, are made of conductive material therefore, are electrically conductive).



**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh T. Nguyen whose telephone number is 571-272-5513. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LN  
December 13, 2006

  
WAYNE YOUNG  
SUPERVISORY PATENT EXAMINER